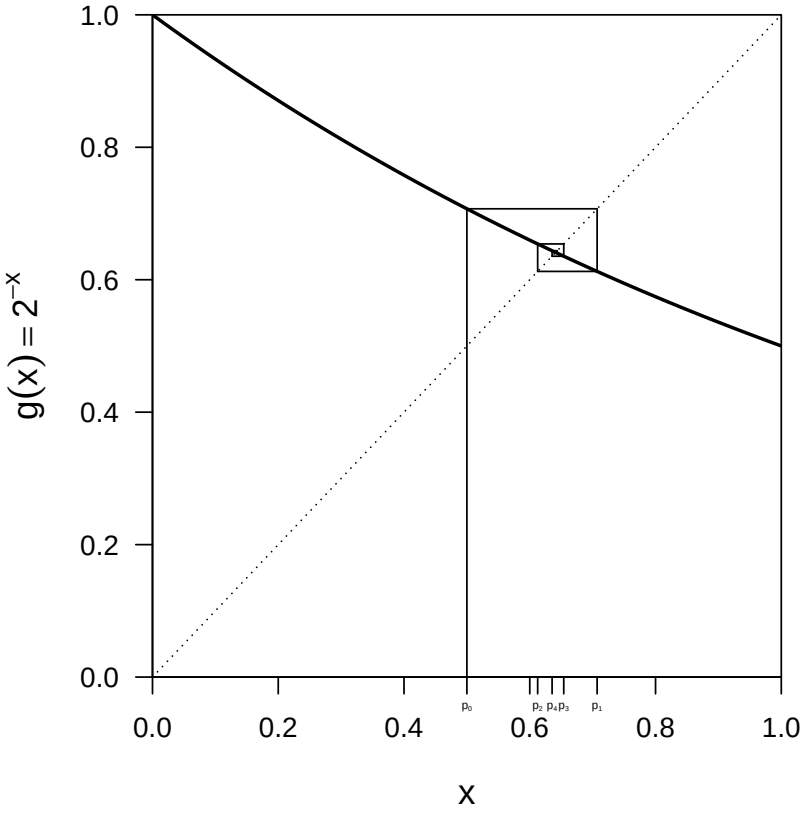
Consider the function

$$g(x) = 2^{-x} = e^{-\ln(2)x}$$

and the associated fixed-point problem $g(x) = x$. The result obtained by cobwebbing (graphically) is shown in the figure below, with the iterates marked in ticks on the bottom axis. Beyond $n = 4$ things get pretty crowded near the fixed point.




As tabular output we have the first few steps as well. Note that $p_n$ are approximates to the root $p$.

| $n$ | $p_n$ |
|---|---|
| 0 | 0.5000000 |
| 1 | 0.7071068 |
| 2 | 0.6125473 |
| 3 | 0.6540409 |
| 4 | 0.6354978 |

Code for figure and report is (not yet) available in the class folder.